Flood Plain Management

Review of Public Notices

Sara Brown
U.S. Army Corps of Engineers

Lisa Jones
South Carolina Department of Natural Resources
State Coordinator

Why does Flood Plain Manager Review Public Notices

- The Section 404(b)(1) guidelines are the criteria used to evaluate discharges of dredged or fill material into waters of the United States, including jurisdictional wetlands, under Section 404 of the Clean Water Act. A fundamental principle of the Section 404(b)(1) guidelines is that dredged or fill material should not be discharged into wetlands and other waters, unless it can be demonstrated that the discharge will not have unacceptable adverse impacts on those waters.

Public Interest Review

- The public interest review is used to evaluate applications under all authorities administered by the Corps. During the review of a permit application, the Corps evaluates the following public interest review factors:
- Conservation
- Economics
- Aesthetics
- General environmental concerns
- Wetlands
- Historic properties
- Fish and wildlife values
- **Flood hazards**
- **Floodplain values**
- Land use
- Navigation
- Shore erosion and accretion
- Recreation
- Water supply and conservation
- Water quality
- Energy needs
- Safety
- Food and fiber production
- Mineral needs
- Considerations of property ownership
- The needs and welfare of the people

Flood Plain Management Review of USACE Public Notices

- What are the water related impacts of your project?
- What is the Flood Hazard Risk of your project?
- What changes to Flood Hazard Risk on your site and on adjacent properties?
- Are you increasing some one else’s Flood Hazard Risk?
- Are you impacting a federal project?

Flood Hazard Risk

- The estimated impact that a flood would have on people, services, facilities, and structures in a community; and the likelihood of a flood event resulting in an adverse condition that causes injury or damage.

- Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold.

Flood Zones

- Flood zones are land areas identified by the Federal Emergency Management Agency (FEMA) to describe that land area in terms of its risk of flooding.
- These are identified on Flood Insurance Rate Maps (FIRMs).
- Everyone lives in a flood zone - it's just a question of whether you live in a low, moderate or high risk area.

Special Flood Hazard Areas

- A land area that is at high risk for flooding is called a Special Flood Hazard Area (SFHAs), or floodplain.

- A home located within an SFHA has a 26 percent chance of suffering flood damage during the term of a 30-year mortgage (compared to a 9% chance of fire in the same time period.)

Flood Zones – Coastal High Risk

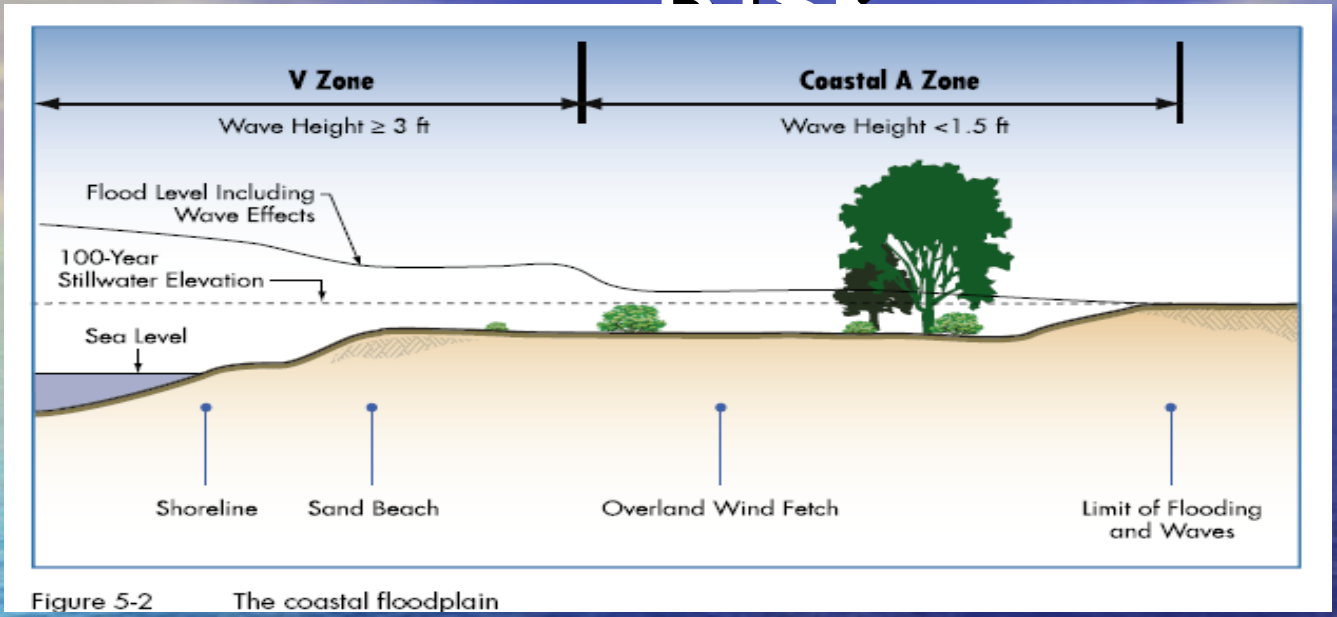


Figure 5-2 The coastal floodplain

Source: FEMA 424 - Design Guide for School Safety Against Earthquakes, Floods, and High Winds

- Zone V is the zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone.
- VE Zones, also known as the coastal high hazard areas. They are subject to high velocity water, including waves; they are defined by the 1% annual chance (base) flood limits (also known as the 100-year flood) and wave effects 3 feet or greater. The hazard zone is mapped with base flood elevations (BFEs) that reflect the combined influence of stillwater flood elevations, primary frontal dunes, and wave effect 3 feet or greater.
- AE Zones, also within the 100-year flood limits, are defined with BFEs that reflect the combined influence of stillwater flood elevations and wave effects less than 3 feet. The AE Zone generally extends from the landward VE zone limit to the limits of the 100-year flood from coastal sources, or until it reaches the confluence with riverine flood sources.

Other Coastal Zones

- AO Zones, representing coastal hazard areas that are mapped with flood depths instead of base flood elevations. Depths are mapped from 1 to 3 feet, in whole-foot increments. These SFHAs generally are located in areas of sheet flow and runoff from coastal flooding where a BFE cannot be established.

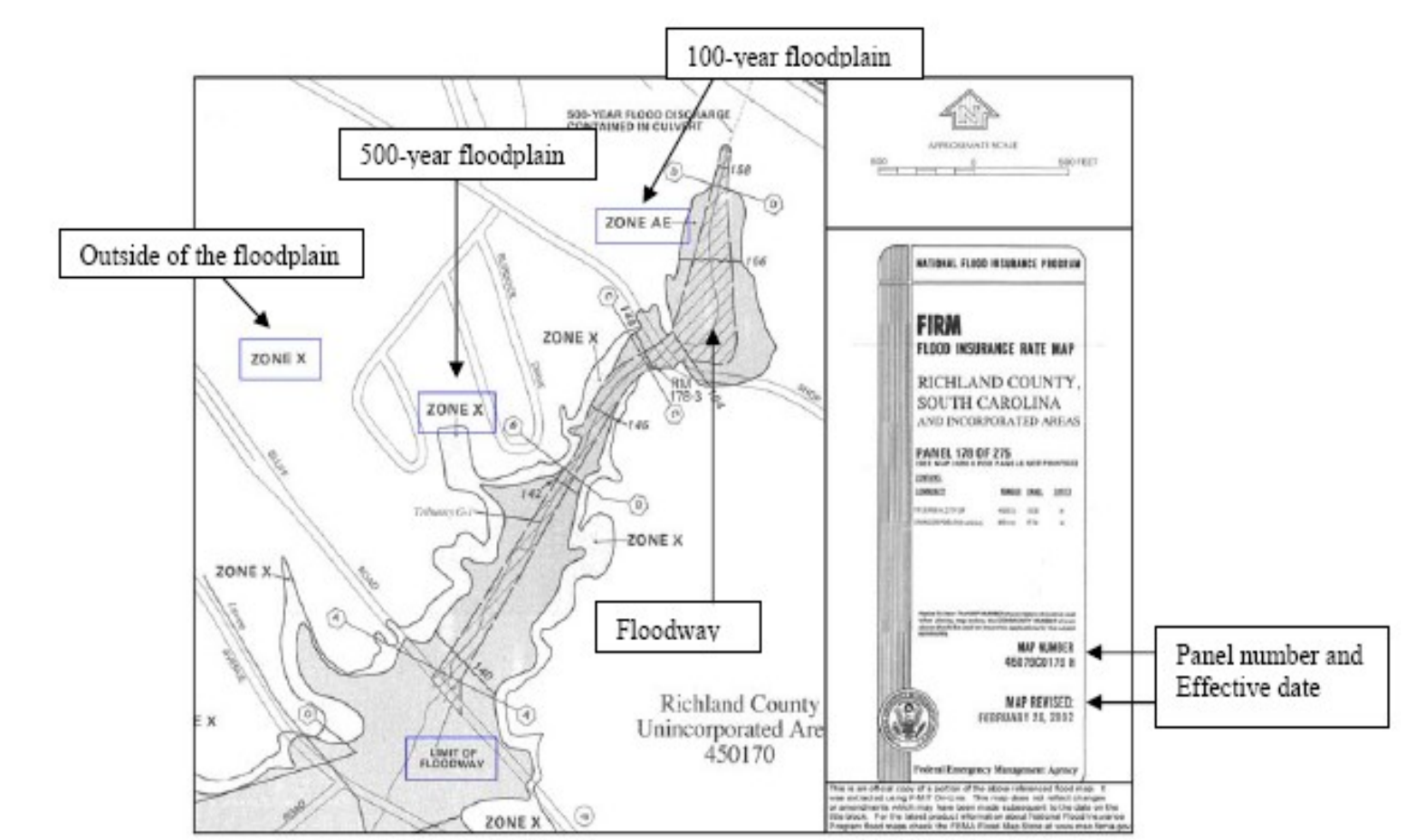
- AH Zones, representing coastal hazard areas associated with shallow flow or ponding, with water depths of 1 to 3 feet. These areas are usually not subdivided, and BFEs are mapped.

- X Zone (shaded), representing the coastal floodplain areas between the 100- year flood and 0.2% annual chance (500-year) flood. These areas are located outside the SFHA, but are depicted on the FIRM unless map scale limitations prevent detailed mapping of this area. They were formerly mapped and depicted as Zone B.

- X Zone (unshaded), representing the areas on the FIRM that are located outside the limits of the 500-year flooding. They were formerly mapped and depicted as Zone C.

Source: FEMA Coastal Flood Hazard Analysis and Mapping Guidelines Focused Study Report

Riverine Flood Zones



Riverine Flood Zones –High Risk

- **Zone A** Zone A is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or depths are shown within this zone.

- **Zone AE** Zone AE is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS by detailed methods. In most instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

- **Zone AH** Zone AH is the flood insurance risk zone that corresponds to the areas of 1-percent-annual-chance shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

High Risk Flood Zones

- **Zone AO** Zone AO is the flood insurance risk zone that corresponds to the areas of 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. The depth should be averaged along the cross section and then along the direction of flow to determine the extent of the zone. Average depths derived from the detailed hydraulic analyses are shown within this zone.

- **Zone A99** Zone A99 is the flood insurance risk zone that corresponds to areas of the 1-percent-annual-chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone.

- **Zone AR** Zone AR is the flood insurance risk zone that corresponds to areas of special flood hazard that results from the decertification of a previously accredited flood protection system that is determined to be in the process of being restored to provide a 1-percent-annual-chance or greater level of flood protection.

- **Zones AR/A, AR/AE, AR/AO, and AR/AH** Zone AR/A, AR/AE, AR/AO, and AR/AH are dual flood insurance risk zones that correspond to areas of special flood hazard that result from the decertification of a previously accredited flood protection system that is determined to be in the process of being restored to provide a 1-percent-annual-chance or greater level of flood protection. The dual-zone designation indicates that some residual 1-percent-annual-chance flooding will occur after the levee system has been restored and is credited with providing 1-percent-annual-chance flood protection.

Floodways

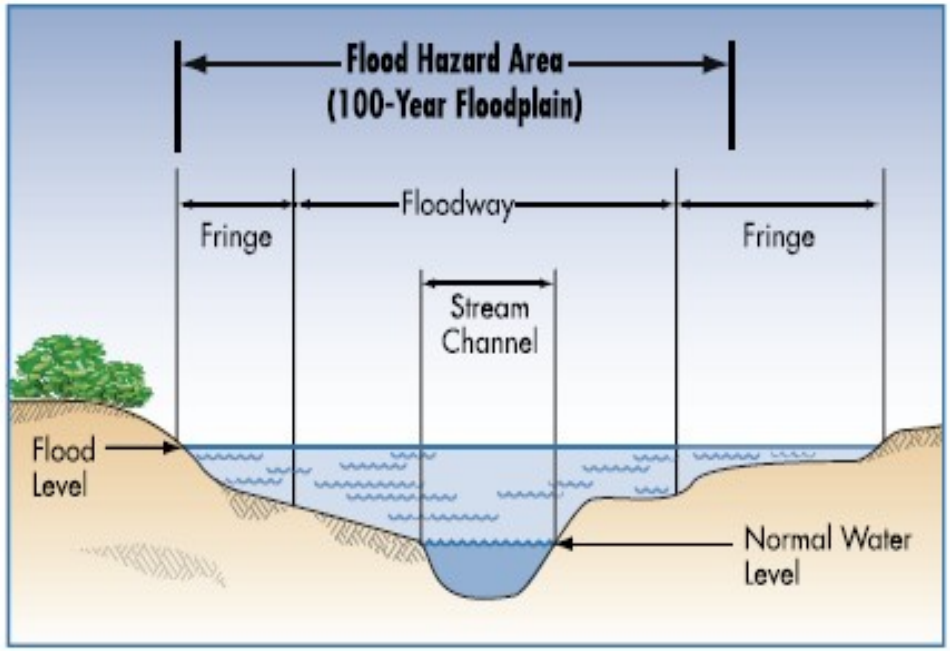


Figure 5-1
The riverine floodplain

Source: FEMA 424 - Design Guide for School Safety Against Earthquakes, Floods, and High Winds

- For most waterways, the floodway is where the water is likely to be deepest and fastest.
- It is the area of the floodplain that should be reserved (kept free of obstructions) to allow floodwaters to move downstream.
- Placing fill or buildings in a floodway may block the flow of water and increase flood heights.

Flood Zones: Moderate – Low Risk

- **Zone X**

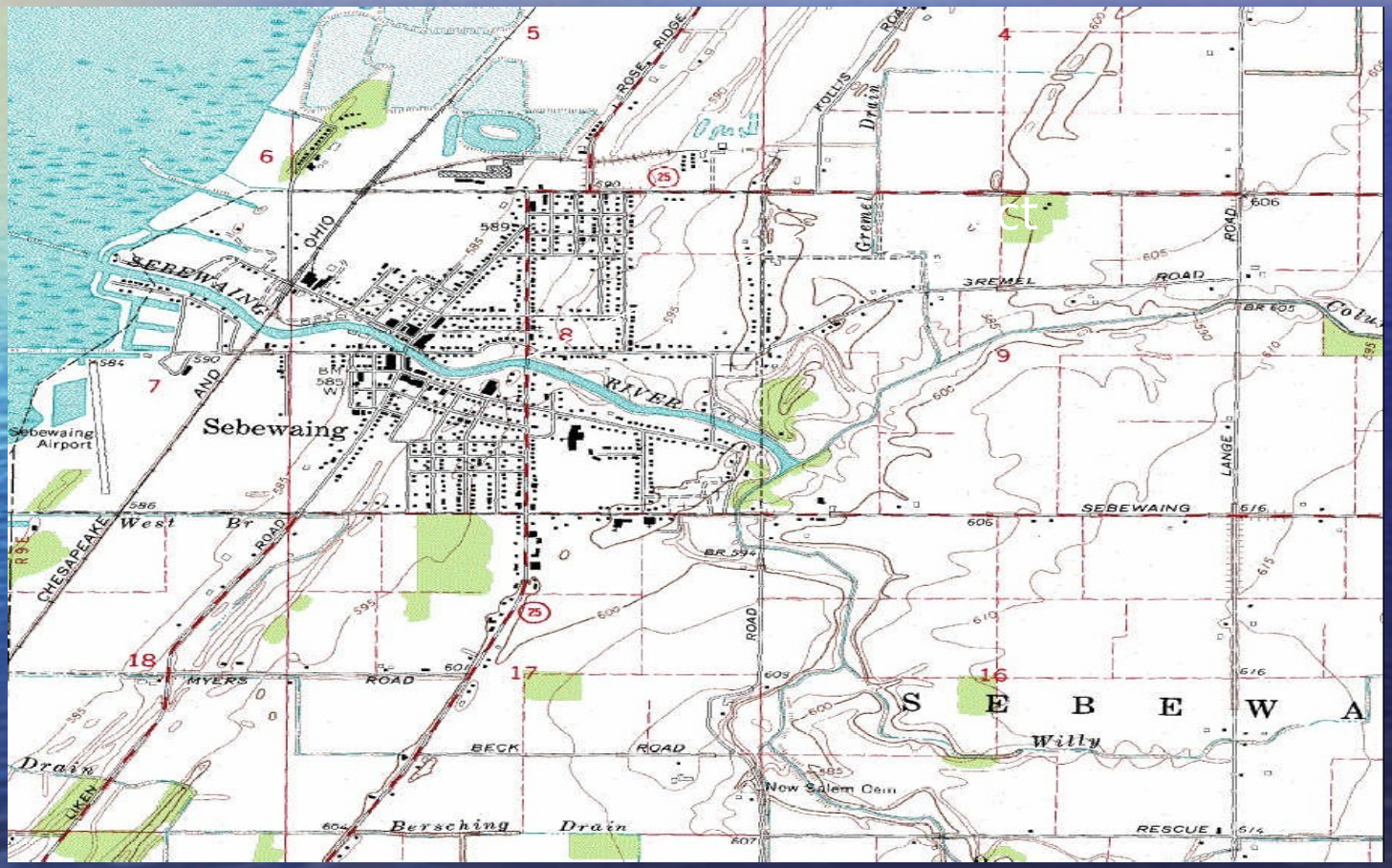
  Zone X is the flood insurance risk zone that corresponds to areas outside the 1-percent-annual-chance floodplain, and areas of 1-percent-annual-chance sheet flow flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1-percent-annual-chance flood by levees. No BFEs or depths are shown within this zone.

- **Zone D**

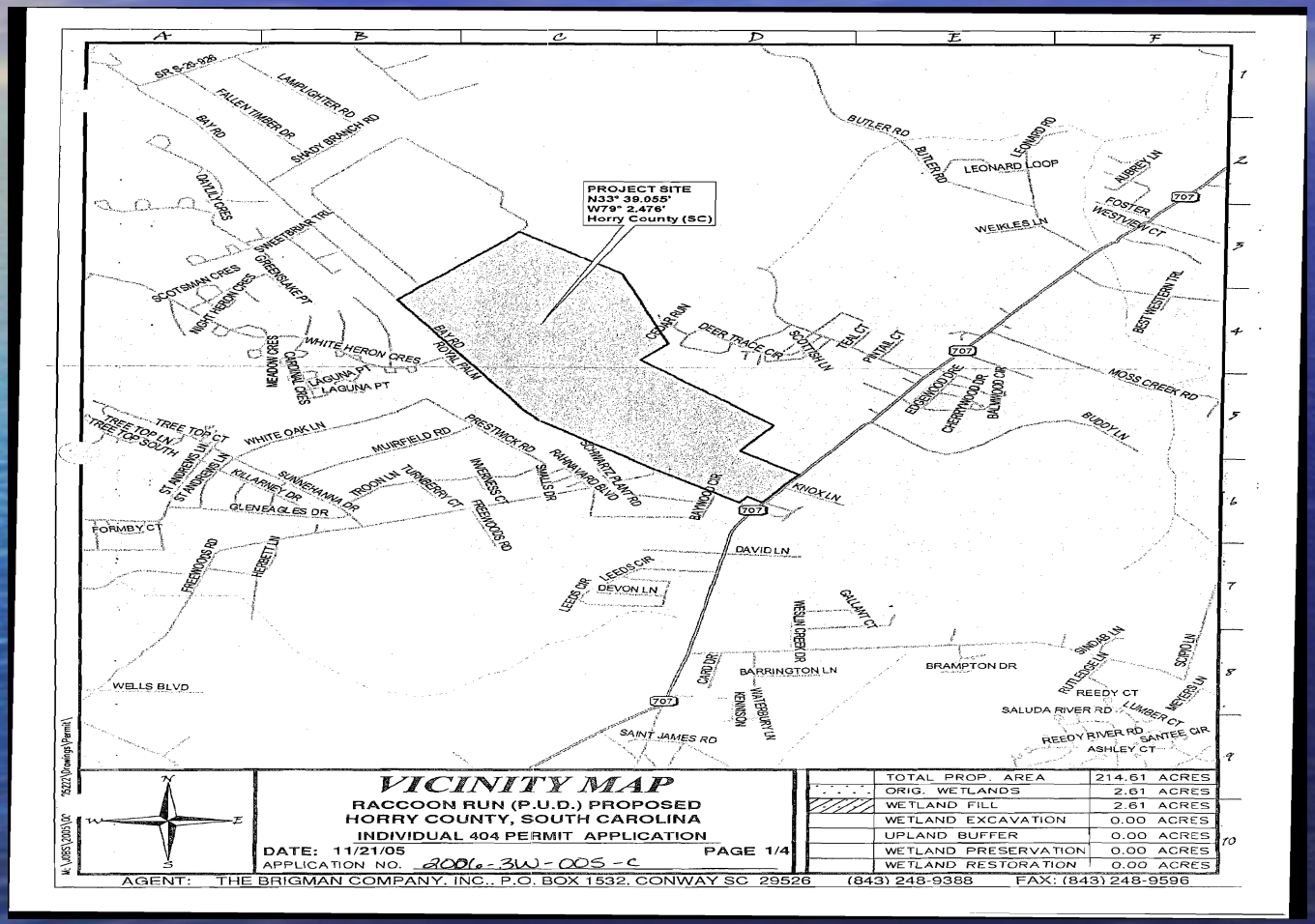
  Zone D is the flood insurance risk zone that corresponds to unstudied areas where flood hazards are undetermined, but possible. Zone D designation may not be used in Flood Insurance Studies unless otherwise approved by the Regional Project Officer. It should be noted that the Mapping Partner is not required to perform a flood hazard factor analysis and subsequent Zone A1-A30 or AE determination even though this information may currently be reflected on a community's FIRM published in the non-map initiative format.

Necessary items for Review

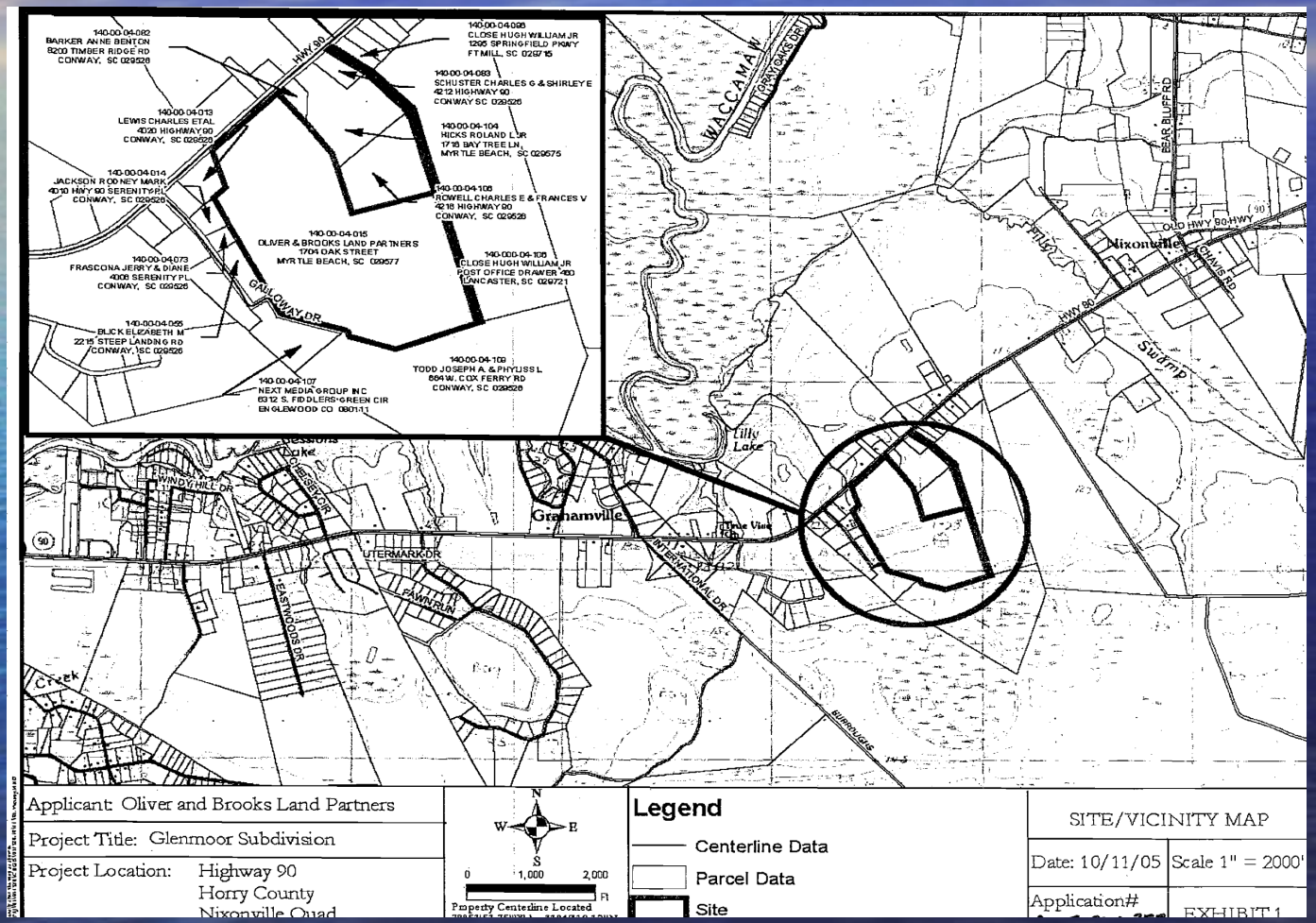
Location Map- nearest city, main roads



More Specific Site Location Map



Combined Site Map

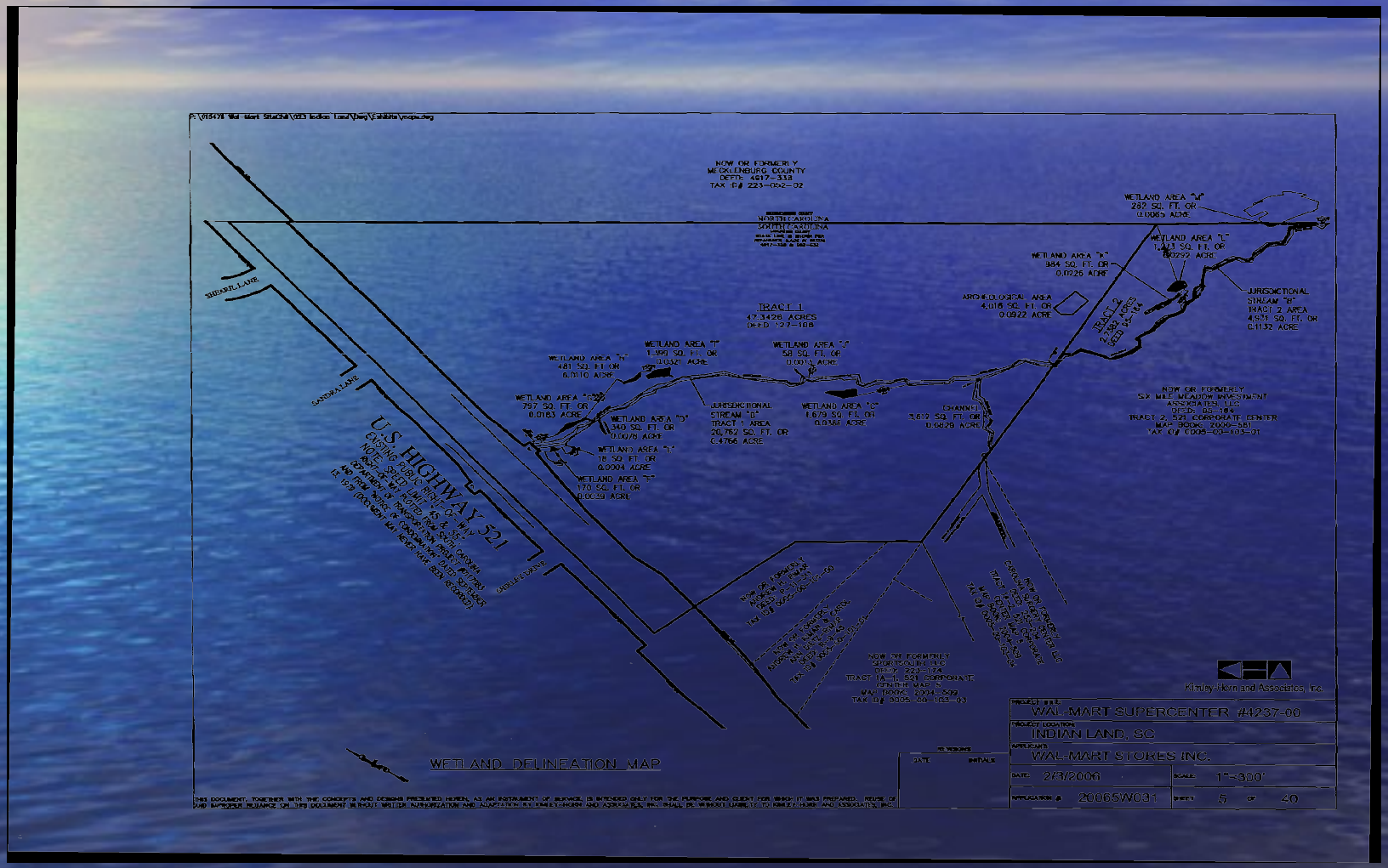


Existing Conditions Site Map

Site map –

- Wetlands,
- Streams, ditches
- Land use
- Topography
- Adjacent properties

Existing Detailed Site Map



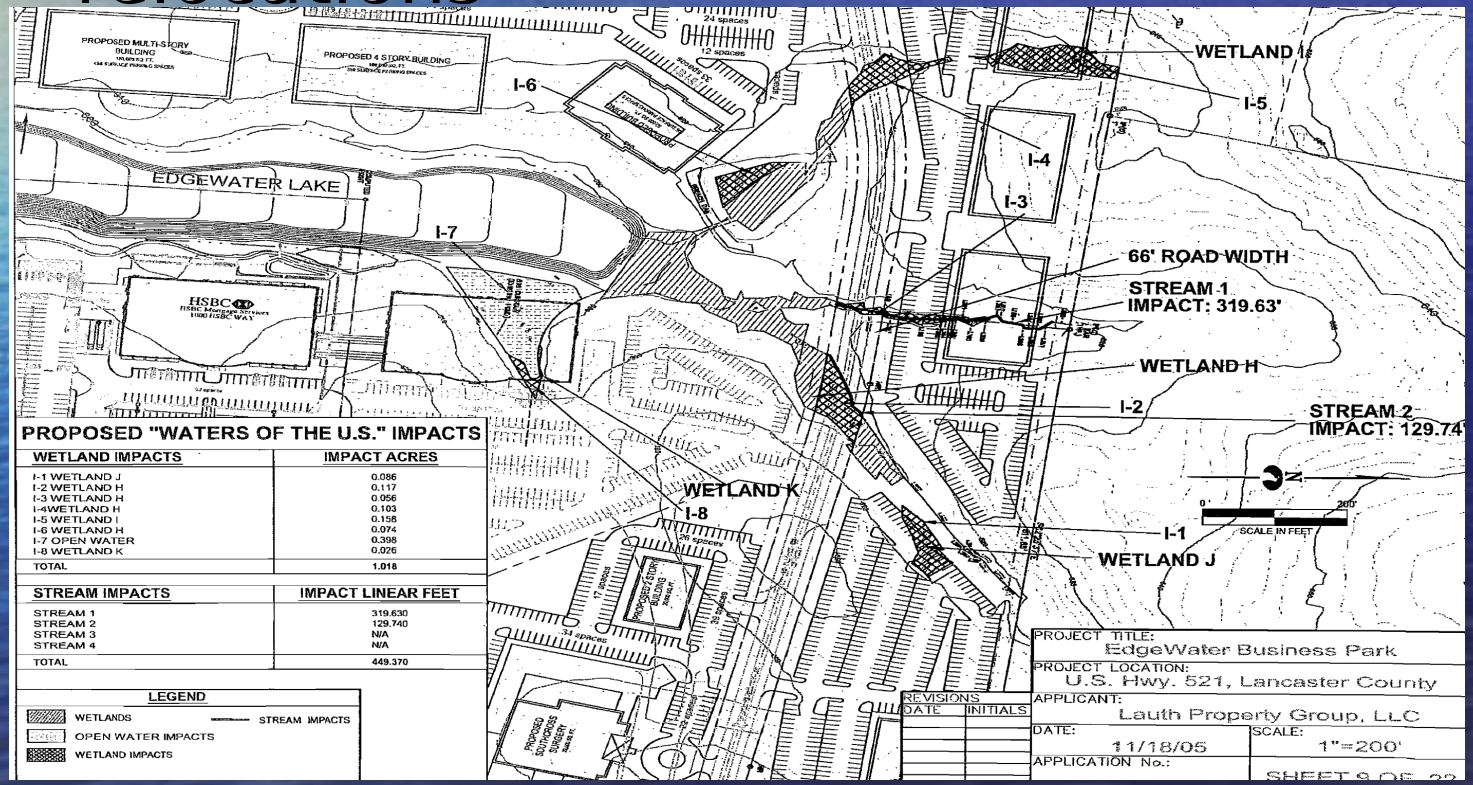
Proposed Project

Describe the alterations to the site

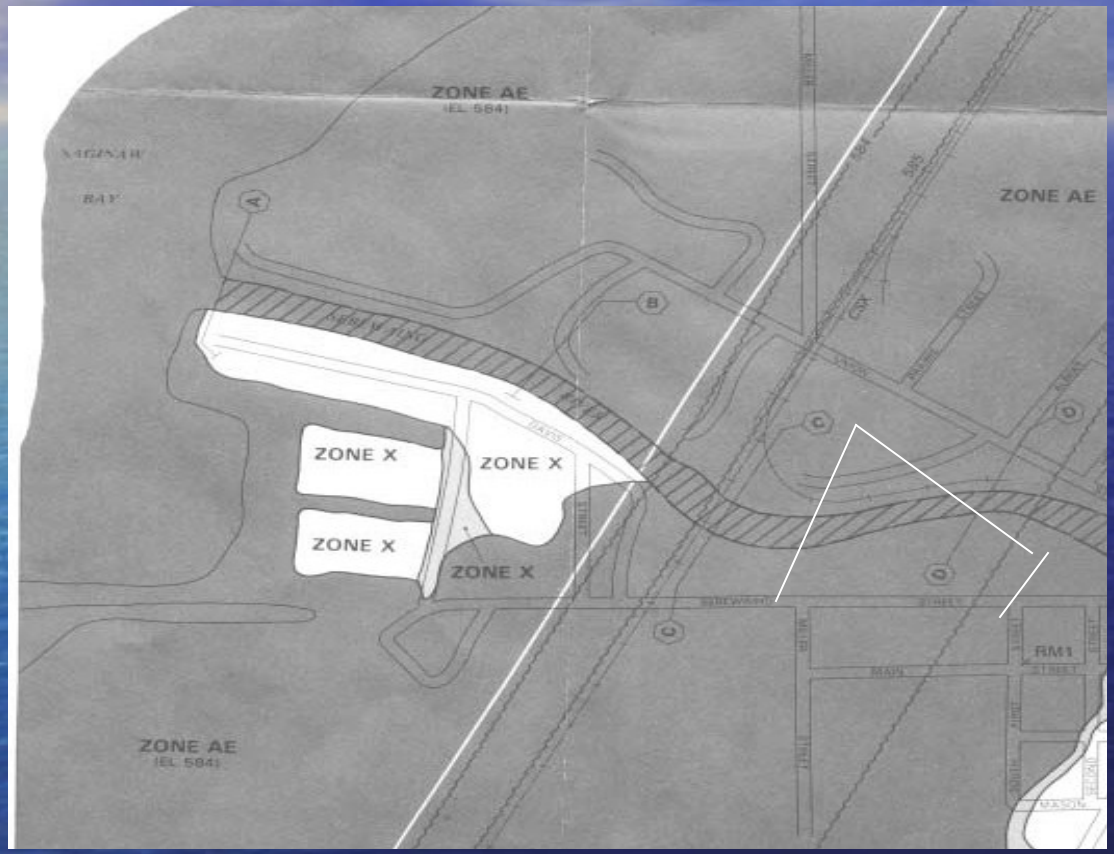
- Change in land use (i.e. wooded area converted to buildings and parking lots).
- Change in topography (i.e. placement of fill to level valley, requiring retaining wall or steep slope at property edge).
- Change to water bodies – fill of wetlands, fill of streams/ditches, reroute streams/ditches, pipe ditches, road crossings of streams – culverts or bridges).

Project Maps

Indicating proposed changes -Show Fill of wetlands, streams and channel relocations



FPM Locates Site on FIRM

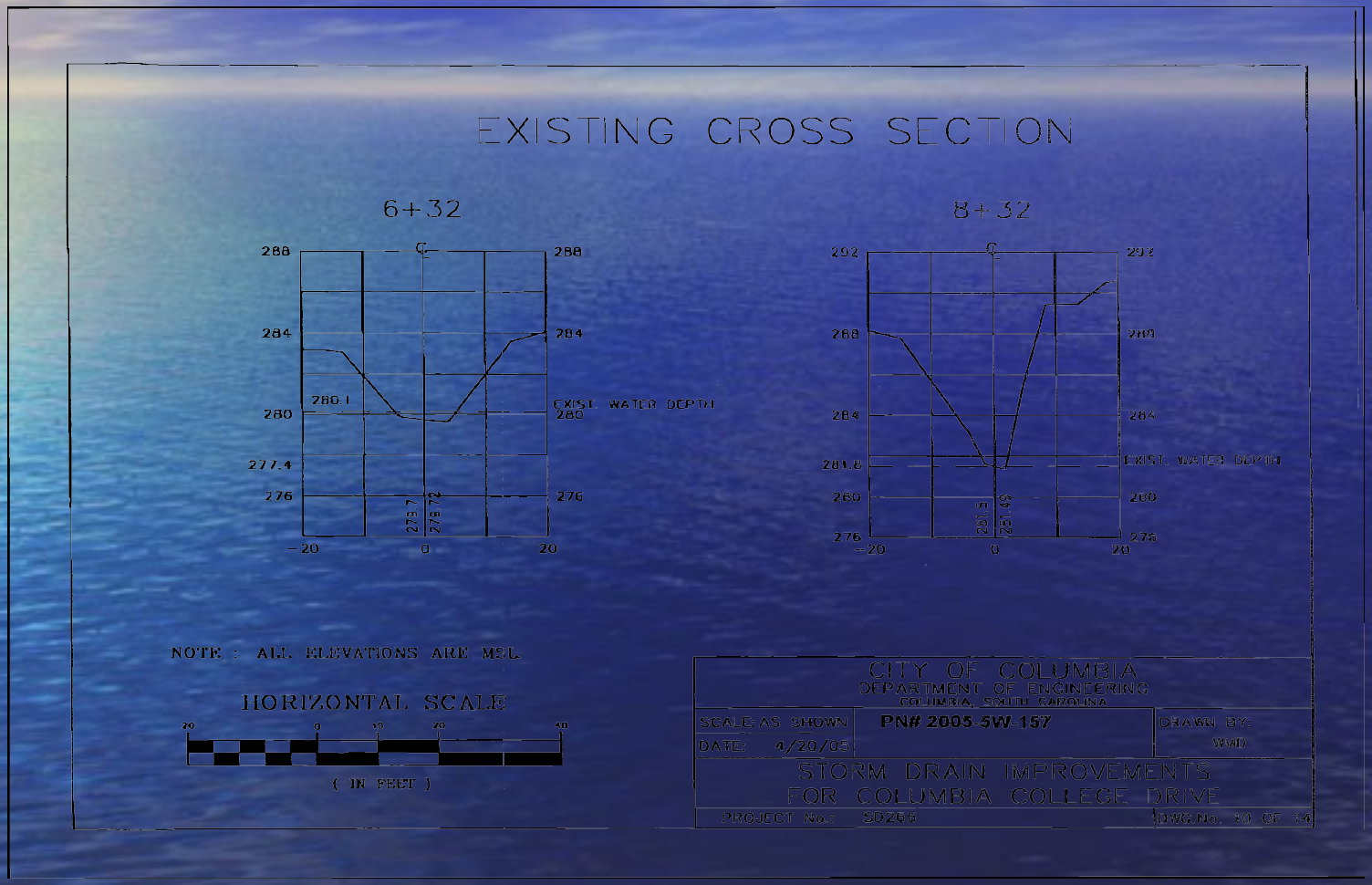


FEMA online mapping:
http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

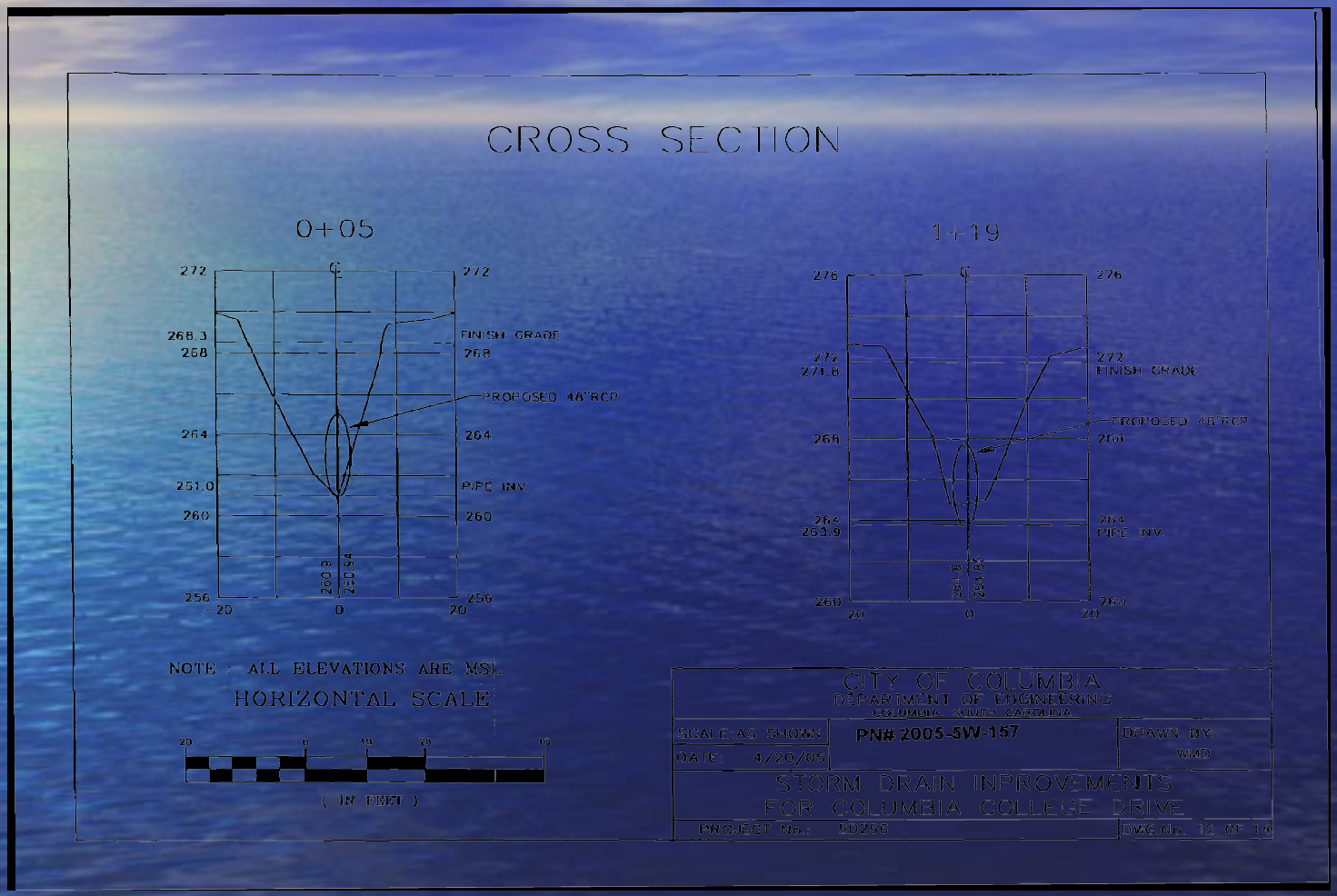
Data Needed for Review

- A table of Pre and post development runoff computations. Just the analysis results.
- Total drainage area – not just the proposed site.
- Cross- sections of changes to channel and floodplain topography.
- Indicate location of new channel conveyance if they have filled/relocated a ditch.
- Table of channel flows and velocities.

Existing Wetland or Stream Cross-sections



Proposed Cross- sections



Roadway Cross- sections

- Cross –section of the channel and floodplain/wetland area with bridge or culverts – show the constriction of the flow.
- Table of flows and velocities and water surface elevations.
- Erosion protection.
- If the design is to have the roadway act as a constriction, attenuating flood water – provide description and analysis results.

Stormwater Detention

- Total drainage area – not just the proposed site – verify that the pond is properly sized for the entire drainage area.
- Zone A streams – show the change in 100 year flood elevation – especially for upstream properties.
- Consider Dry detention – provides more flood storage capacity.
- Detention with pool – realize available storage is only above normal pool and there less attenuation of flood peak – maximize flood storage capacity.
- Outfall structures may require erosion control or energy dissipators.

Necessary Pond Data

- Topographic map of the impoundment area of the pond for normal pool and flood pool.
- Property lines.
- Site map – show location of pond with respect to downstream impacts.
- Provide a cross–section of the dam with emergency spillway.
- Table of pre-development and post- development flows and water surface elevations – upstream and downstream.
- Table of velocities of the riser outfall and emergency spillway.

Show Site and Location of Area

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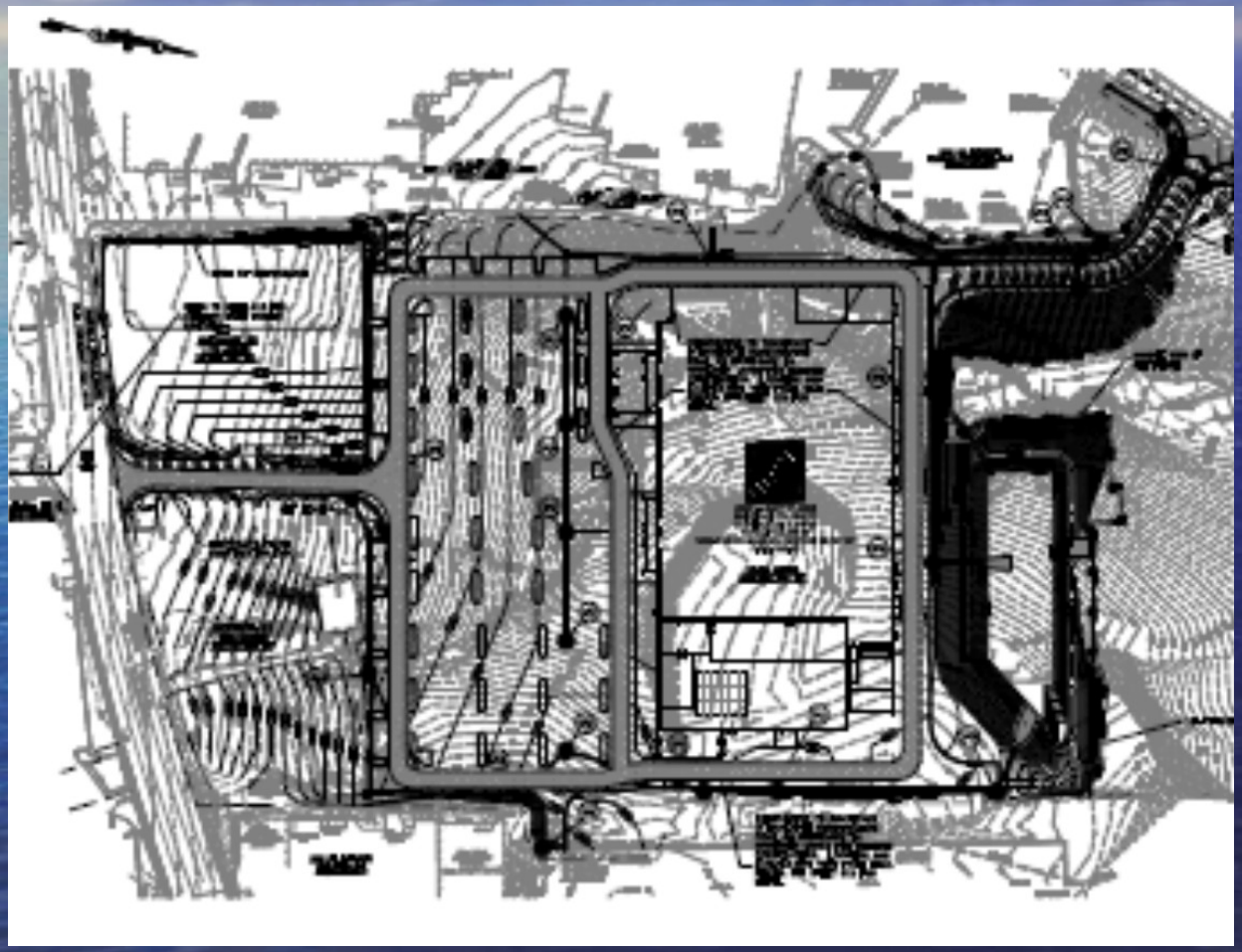
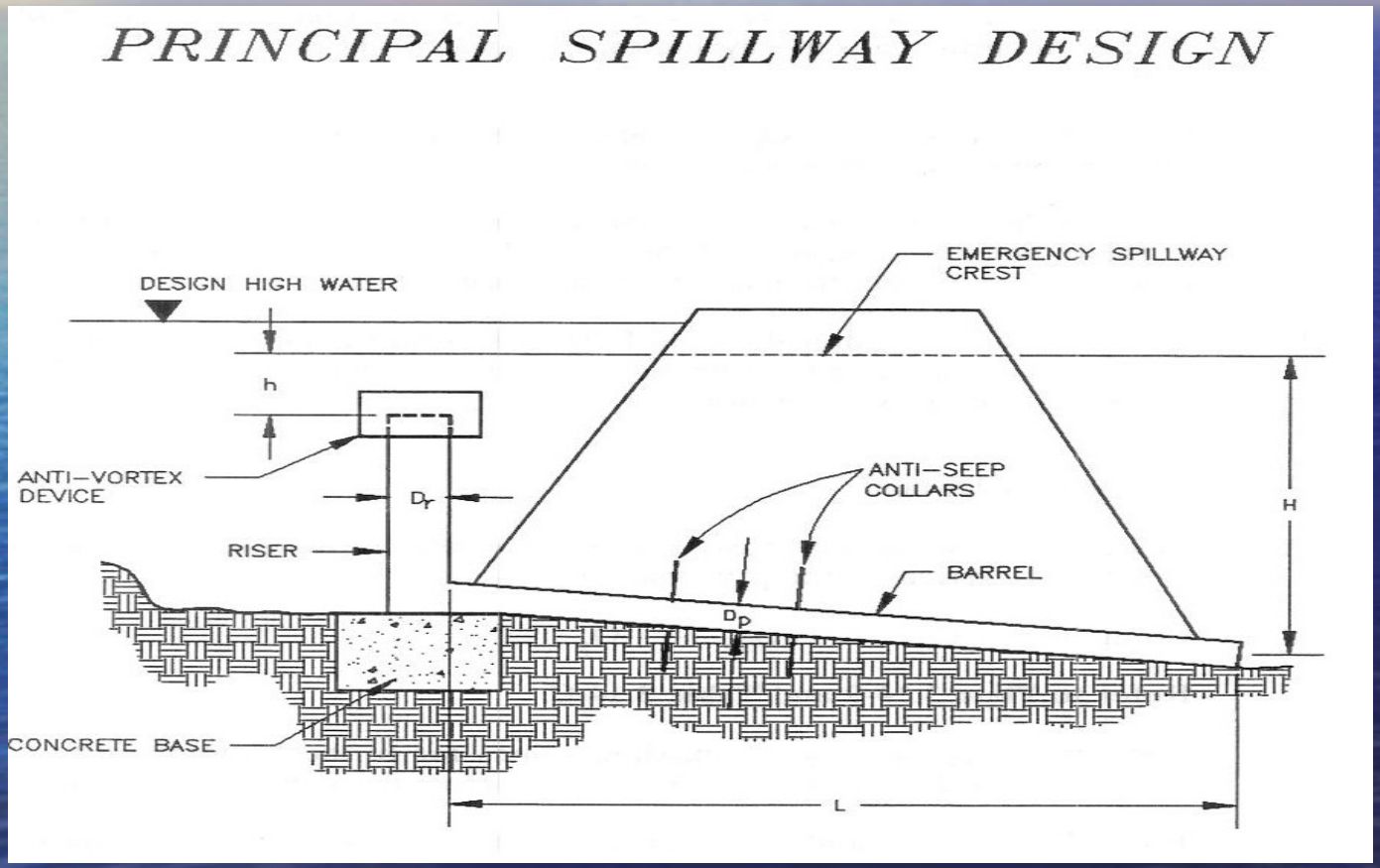
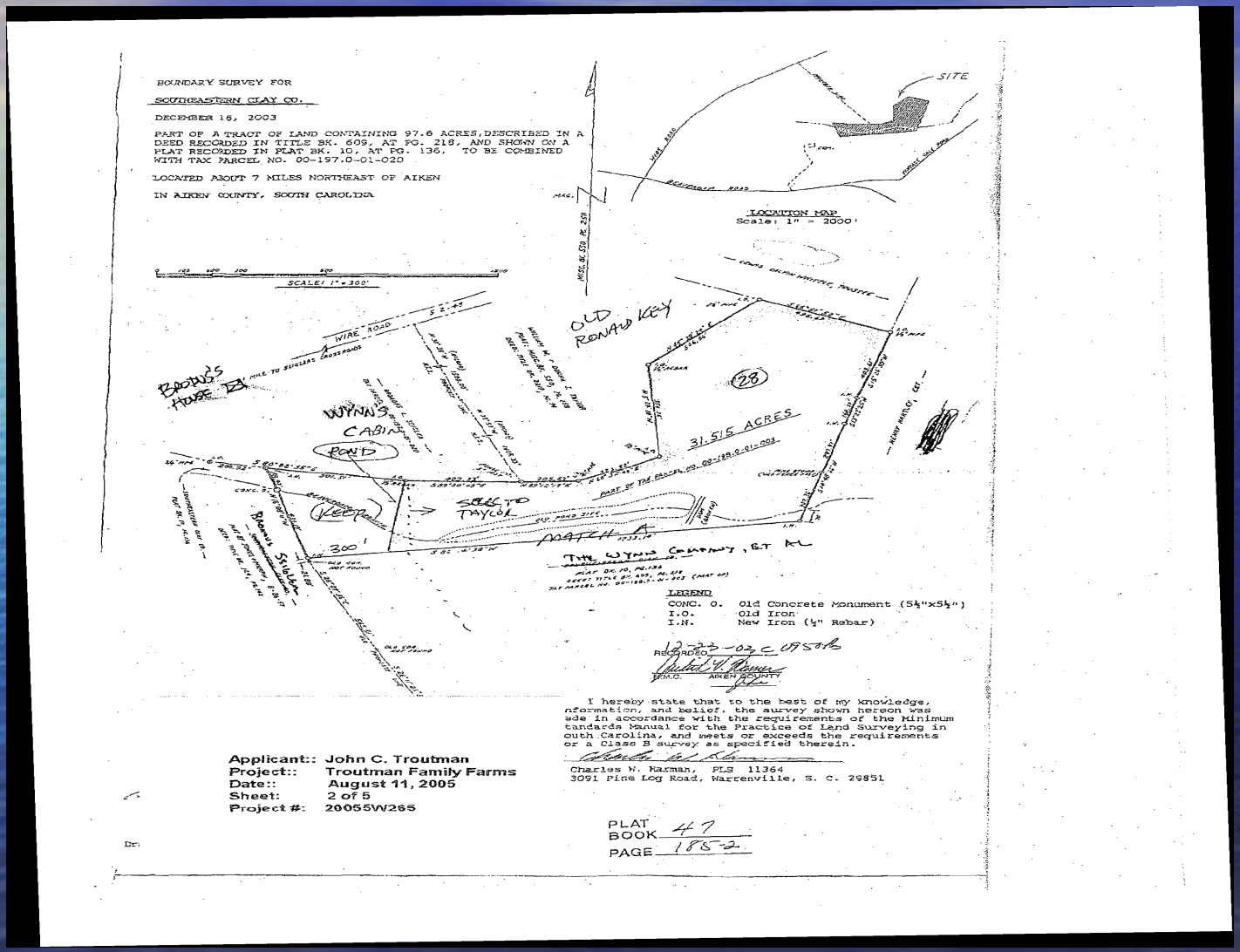


Dam and Spillway Data



Plan View


BOUNDARY SURVEY FOR
SOUTHEASTERN CLAY CO.
DECEMBER 16, 2003
PART OF A TRACT OF LAND CONTAINING 97.6 ACRES, DESCRIBED IN A DEED RECORDED IN TITLE BK. 609, AT PG. 219, AND SHOWN ON A PLAT RECORDED IN PLAT BK. 10, AT PG. 136, TO BE COMBINED WITH TAX PARCEL NO. 00-197.0-01-020
LOCATED ABOUT 7 MILES NORTHEAST OF AIKEN
IN AIKEN COUNTY, SOUTH CAROLINA
SITE
LOCATION MAP
Scale: 1" = 2000'
SCALE: 1" = 300'
OLD RONALD KEY
WIRE ROAD
BROWN'S HOUSE
WYNN'S CABIN
POND
31.515 ACRES
SOLD TO TAYLOR
THE WYNN COMPANY, ET AL
Brown's Station
300'
LEGEND
CONC. O. Old Concrete Monument (5½"x5½")
I.O. Old Iron
I.N. New Iron (½" Rebar)
RECORDED
CLERK
AIKEN COUNTY
I hereby state that to the best of my knowledge, information, and belief, the survey shown hereon was made in accordance with the requirements of the Minimum Standards Manual for the Practice of Land Surveying in South Carolina, and meets or exceeds the requirements for a Class B survey as specified therein.
Charles W. Harman, PLS 11364
3091 Pine Log Road, Warrenville, S. C. 29851
Applicant:: John C. Troutman
Project:: Troutman Family Farms
Date:: August 11, 2005
Sheet: 2 of 5
Project #: 20055W265
PLAT BOOK 47
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Other Permit Subjects

- Dredging : Where are you placing the dredge material? It is in the floodplain or floodway?
- Boat Docks: Are you placing fill for a bulkhead? How close are you to the federal channel?
- Streambank Stabilization: Are you placing riprap on the slopes? Will it impede flow or boat traffic if it is carried away in flood.
- Will it affect a federal channel?
- We require assurances that the federal interest is protected.

FPM Comments

- Existing Flood Hazard Risk and any changes to Flood Hazard Risk due to the proposed project.
- Whether it appears there is any impact on adjacent properties – upstream flooding.
- Impacts to federal projects (federal navigation channel or flood control project).
- Overall hydrologic or hydraulic impacts.